

Abstract Submitted
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Photoevaporation of Cosmological Minihalos by the First Stars THOMAS MCCONKIE, Brigham Young University, DANIEL WHALEN¹, ROBERT HUECKSTAEDT, Los Alamos National Laboratory — Whalen et al. [1] conducted a survey which analyzed the effect of radiative feedback by one primordial star on subsequent star formation. Their study found results deviating from previous one-dimensional modeling. We extended the survey by performing two-dimensional simulations of cosmological minihalo evaporation using the astrophysical fluid hydrodynamic code ZEUS-MP. This code was run varying primordial star size (25 - 80 M_{\odot}), halo to star distance (150 - 1000 pc), and halo central density (1.43 - 1569 cm^{-3}). We find that the ionization front of the star penetrates nearby halos to varying degrees according to their central density and proximity to the star. The degree of penetration may prevent, postpone, delay or have no effect on star formation.

[1] D. Whalen, B. W. O’Shea, J. Smidt, and M. L. Norman, “How the First Stars Regulated Local Star Formation. I. Radiative Feedback,” *The Astrophysical Journal* 679, 925–941 (2008).

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